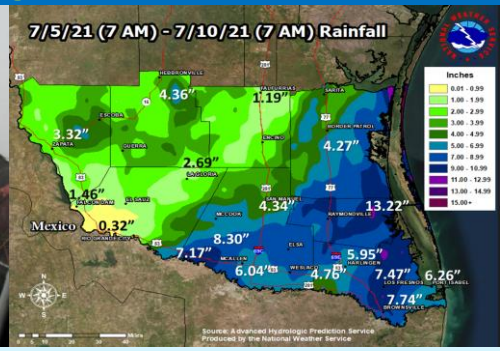
Summer 2022 Outlook: Perspective for the Lower Rio Grande Valley/Deep S. Texas Region

NATIONAL WEATHER SERVICE

June 7, 2022

Barry Goldsmith, NWS Brownsville/Rio Grande Valley, Texas

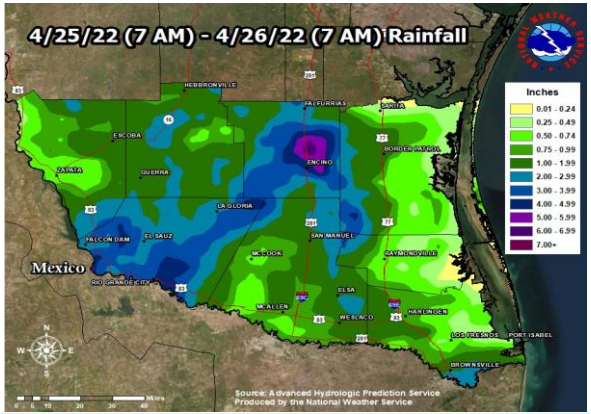
Any of the below is possible through August



Spring 2022 Review

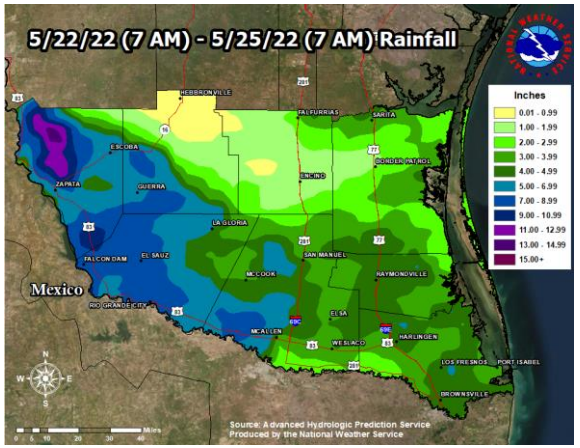
- March and most of April showed steady worsening of the drought, with Level 3 (Extreme) and Level 4 (Exceptional) reaching the Rio Grande Plains/Brush Country, as expected
- Wildfire “season” was active, with an estimated 33,000 acres burned in rural Deep S. Texas ranch/brush country and the upper Valley between February and early April
- A “one-off” torrential rain event on April 25/26 temporarily improved dryness/drought and humidity that followed quelled the wildfire season into early May

“Hayfield” Fire on the Norias Division of the King Ranch, March 24/25, 2022



Spring 2022 Review (continued)

- After hot and rain-free conditions returned drought to much of the Rio Grande Plains/Brush Country, multiple thunderstorms on May 23/24 finished it off, headed into June
- May was among the top ten hottest on record; Brownsville ranked #2 all-time (records back to 1878); Harlingen #3 (1912), and McAllen #9 (1942).



Maximum 1-Month Mean Avg Temperature for Brownsville Area, TX (ThreadEx)

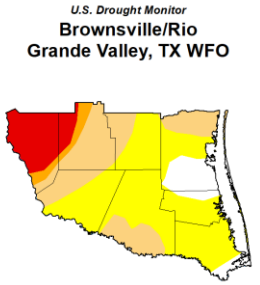
Click column heading to sort ascending, click again to sort descending.

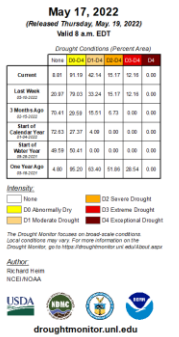
Rank	Value	Ending Date	Missing Days
1	84.1	2019-05-31	0
2	83.9	2022-05-31	0
3	83.2	2018-05-31	0
-	83.2	1978-05-31	0
5	83.2	2003-05-31	0
6	83.0	2020-05-31	0
7	82.7	2012-05-31	0
8	82.7	2011-05-31	0
9	82.6	1996-05-31	0
10	82.5	2000-05-31	0
Period of record: 1878-01-01 to 2022-06-06			

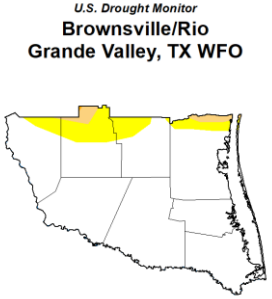
Maximum 1-Month Mean Avg Temperature for McAllen Area, TX (ThreadEx)

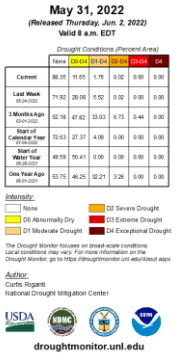
Click column heading to sort ascending, click again to sort descending.

Rank	Value	Ending Date	Missing Days
1	85.5	2018-05-31	0
2	85.3	2003-05-31	0
3	84.8	2008-05-31	0
4	84.8	2009-05-31	0
5	84.6	2019-05-31	0
6	84.5	2017-05-31	0
7	84.3	2000-05-31	0
8	84.3	1998-05-31	0
9	84.3	2022-05-31	0
10	84.1	1996-05-31	0
Period of record: 1941-06-01 to 2022-06-06			

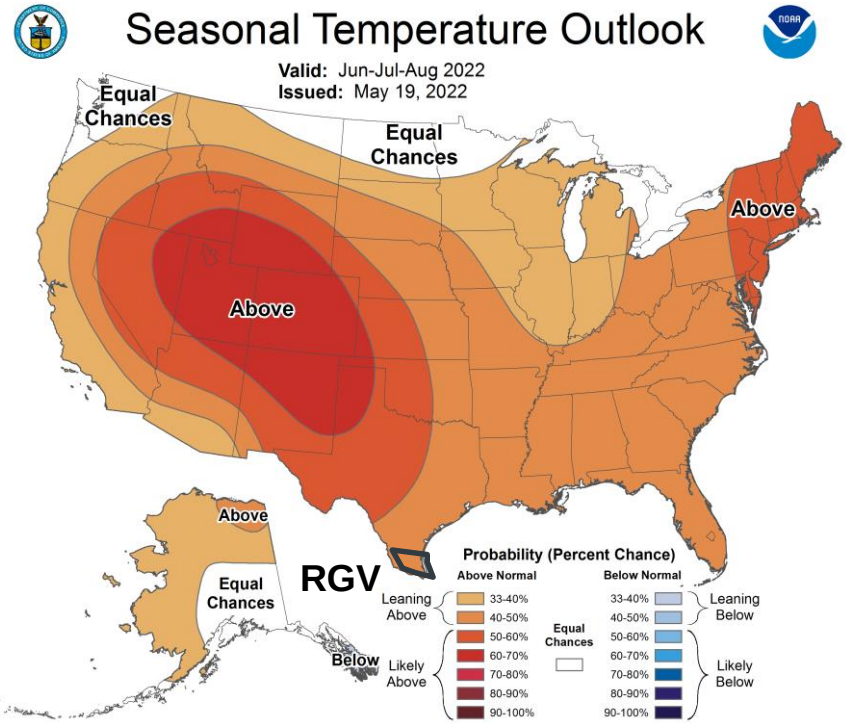


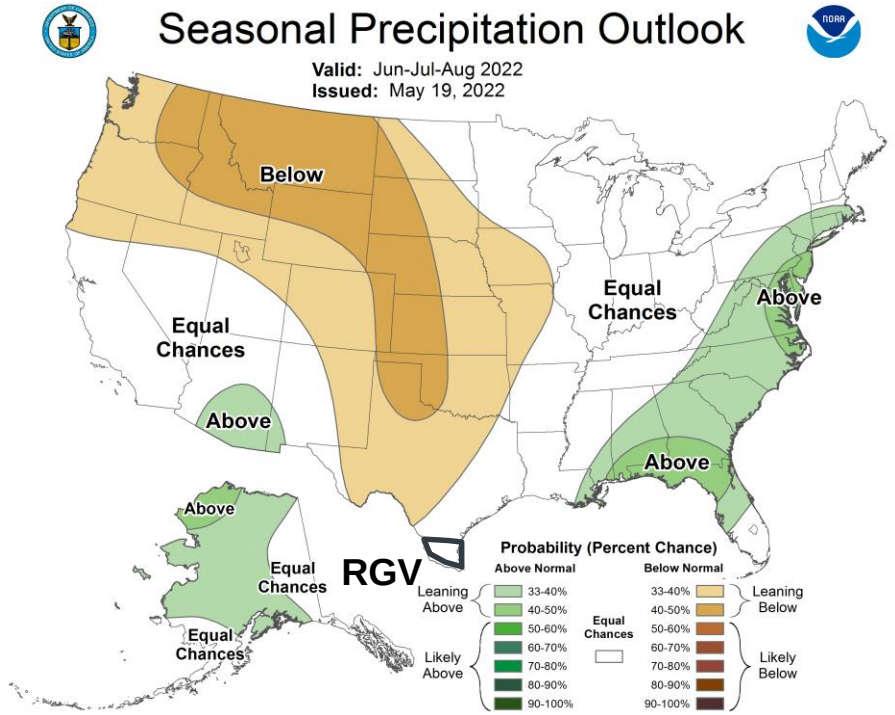






Seasonal Forecast Summer 2022 - USA





Key Takeaways: Summer 2022

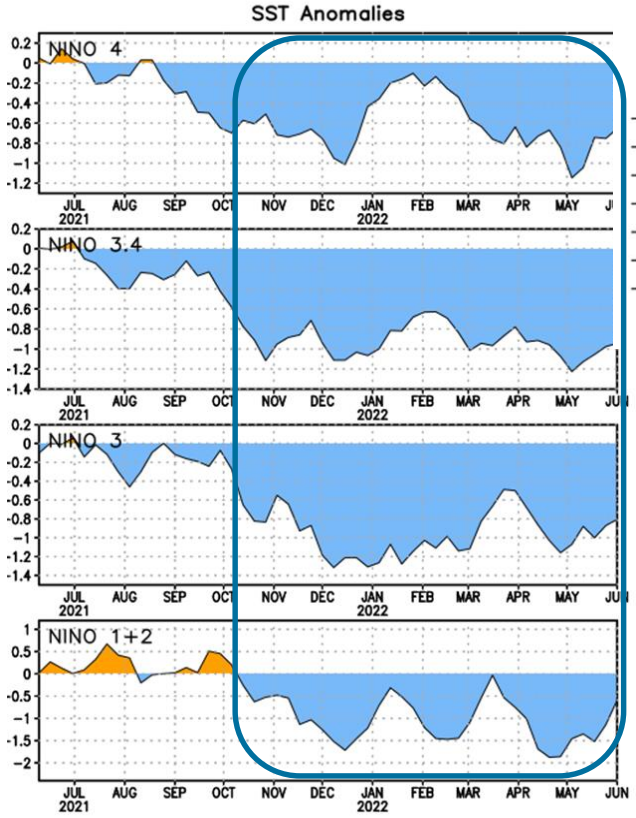
- **Above to average temperatures**, and a "lean" toward below average rainfall continues...
- ***Confidence is high*** on a **hot summer**, but rainfall is a "wild card" due to tropical potential
  - **Excessive Heat**, even by Valley standards, **is likely to be a recurring theme**. If rainfall fails to materialize and the pattern that dominated most of May and early June prevails, 100°F+ temperatures are likely on many days west of IH-69E. Periodic humidity could push apparent temperatures 111ºF and 120ºF – locally higher, on more than ten days.
  - **Tropical "wild cards"** are possible just about anytime from late June through August, in the form of cyclones or energy waves. **Without them**, **drought will quickly redevelop across all but the immediate coast**. **With them**, **flooding** (and worse) is likely. June 2018 and 2019 stand out, as does early July 2021.
  - The regrowth of grasses, brush, and trees following the late May deluges, followed by prolonged hot, dry, and breezy conditions through summer, could renew the threat for **rapid wildfire spread/growth**. Areas under highest threat would be along and west of IH-69C from Brooks/Hidalgo to Zapata.

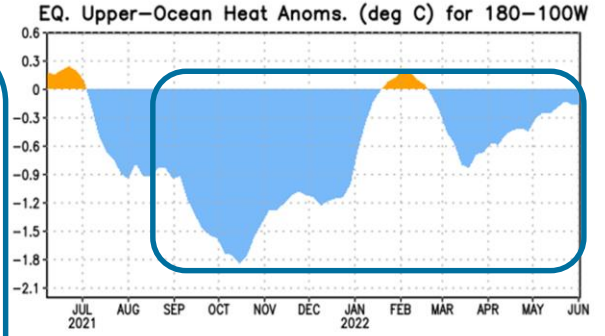
Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2021	-1.0	-0.9	-0.8	-0.7	-0.5	-0.4	-0.4	-0.5	-0.7	-0.8	-1.0	-1.0
2022	-1.0	-0.9	-1.0	-1.1								

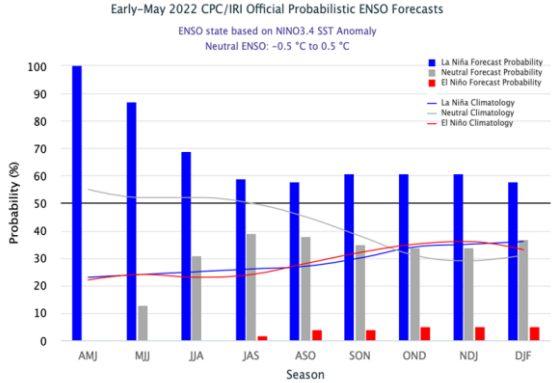
The "Why" of the Forecast: El Niño/Southern Oscillation (ENSO) (still) in La Niña Phase

- La Niña remains stubborn, and is now expected to remain the dominant signal into summer, with only slow weakening
- The stout late spring/summer La Niña combined with general atmospheric patterns and other "teleconnections" generally leans toward hot and dry/drought conditions…
- …but La Niña and other factors also support potential for tropical cyclones.

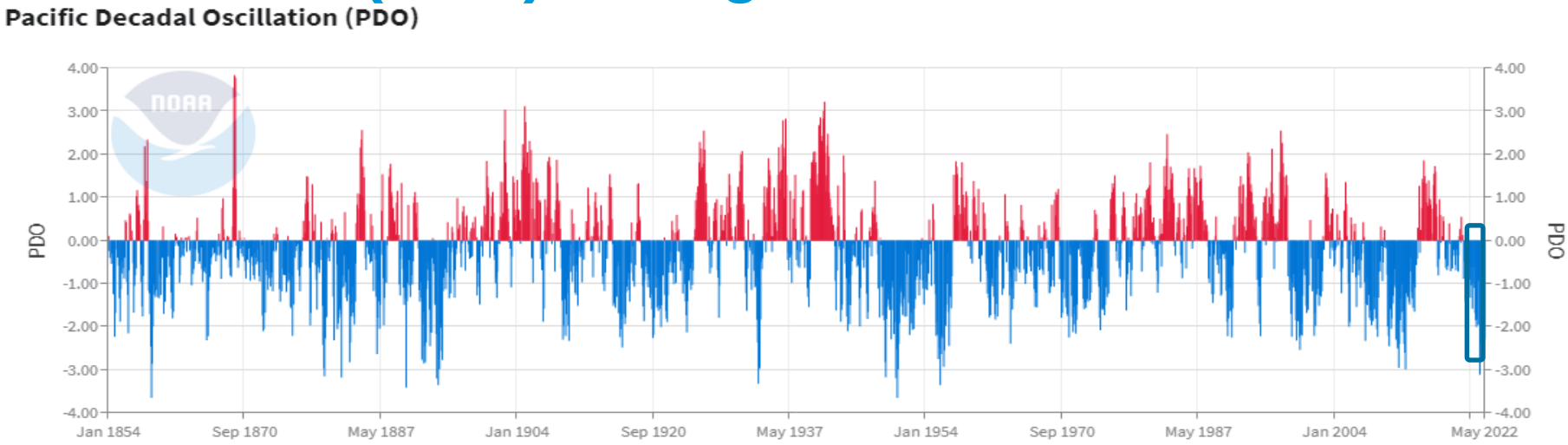
*Above right: Oceanic Niño Index. Values below -0.5 (light blue) indicate a 3-month La Niña episode.







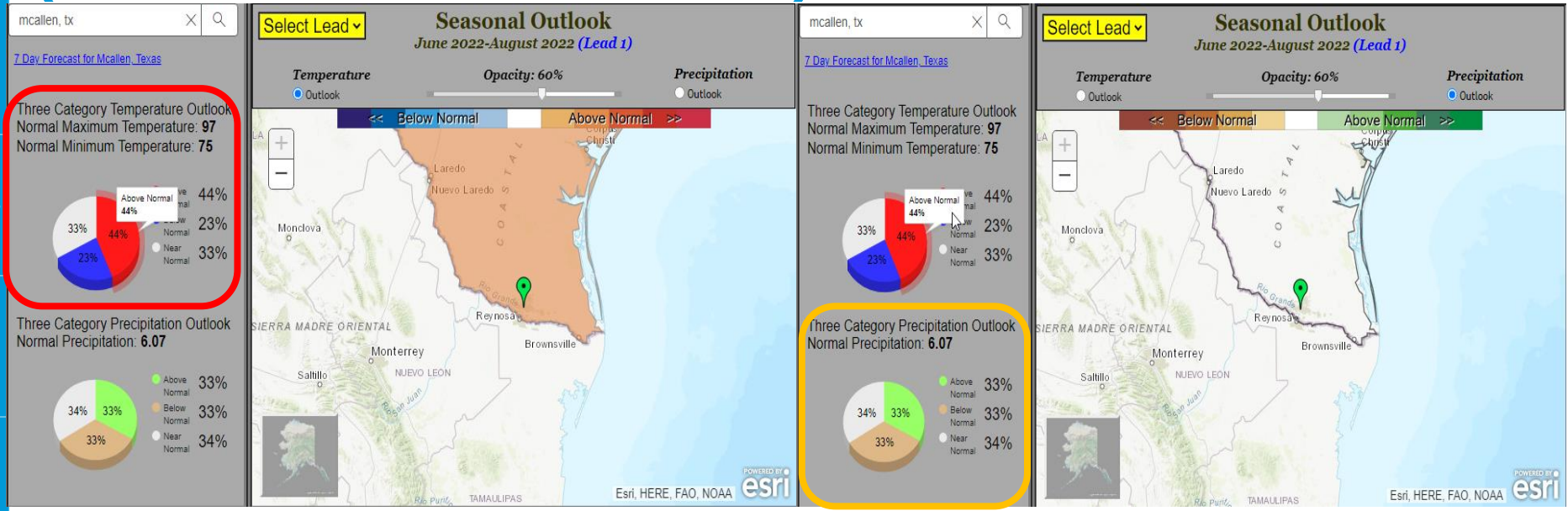
The “Why” of the Forecast: Pacific Decadal Oscillation (PDO) in Negative Phase



Source: https://www.ncei.noaa.gov/pub/data/cmb/ersst/v5/index/ersst.v5.pdo.dat

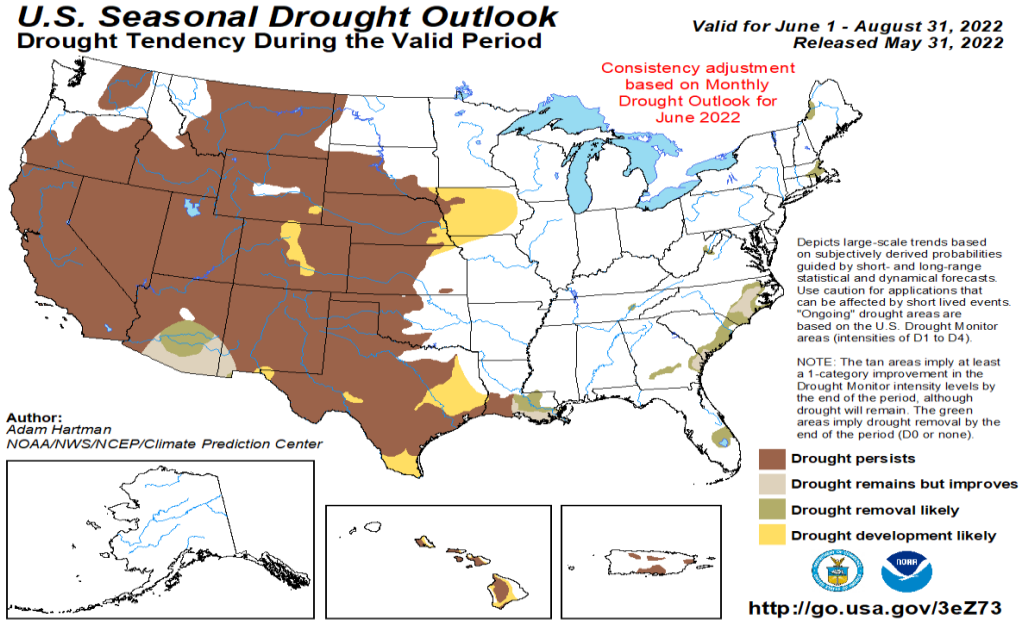
- The 2021/2022 prolonged negative PDO is now similar to that of late 2010 through 2011. Combined with the persistent La Niña – also very similar to that from late 2010-2011 (though 2011 was a bit stronger), **confidence remains high on a continued hot summer 2022**.
- Still, summer remains a **rainfall wild card:** First, oceanic/atmospheric combinations favor an active Atlantic Hurricane season with some potential for other tropical waves; second, April and May 2022 each had “one-off” events that turned dry to flood and alleviated drought in the RGV.

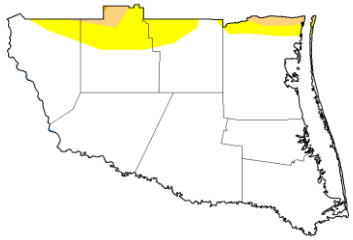
The Summer 2022 Outlook: Rio Grande Valley (McAllen as Anchor Point)



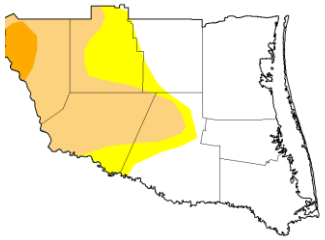
- Temperature: A 44 percent chance of above average. RGV averages (daytime): Upper 90s to 100+
- Precipitation: Equal chances (~33.3 percent of all three categories), RGV averages: 6 to 7 inches.
- Of note: Average temperatures rose ~2 degrees for the 1991-2020 sample, making it more difficult to forecast a summer value much above this.

The Summer 2022 “Droughtlook”





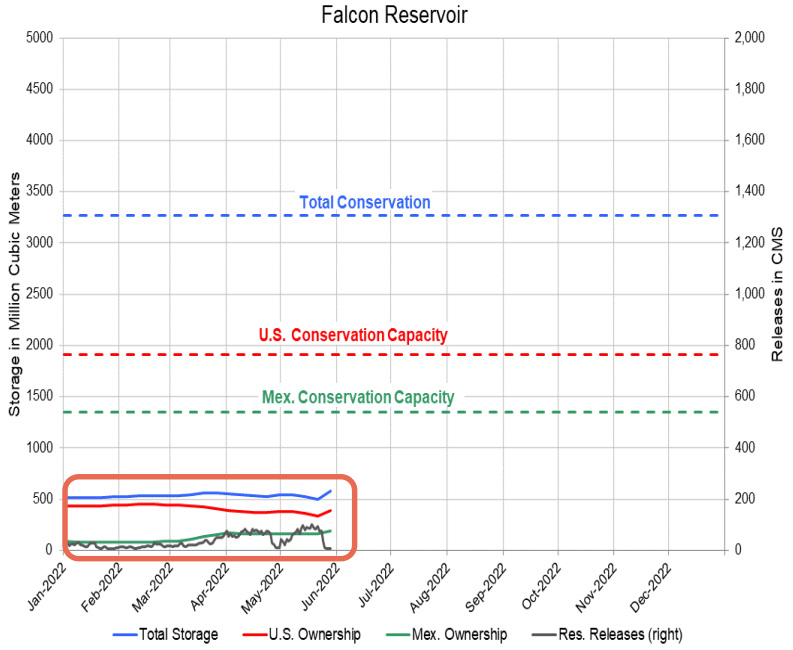
May 31, 2022

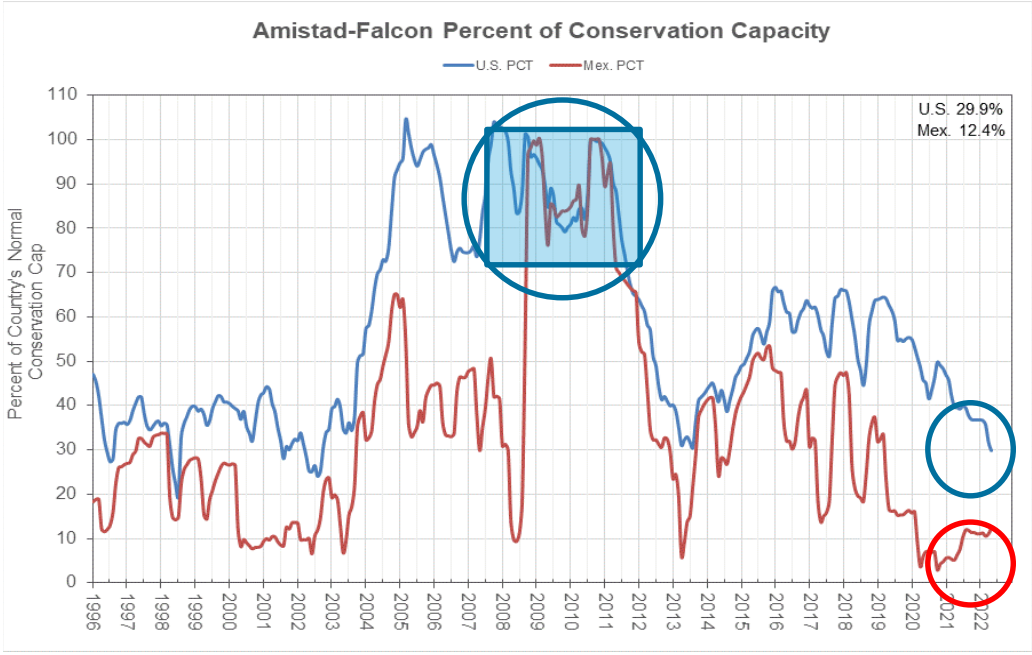


June 1, 2021

- If “wild card” or tropical rains do not occur, **drought** is likely to **return to much of the Rio Grande Valley/Deep S. Texas in summer.** Best chance for severe to extreme drought is from Hidalgo/Brooks through Zapata.
- Summer rains are a **“wild card”.** If **rains come as they did in June/July 2018-2021**, drought will be unlikely. If **they don’t come, moderate to extreme conditions** will return, with worst conditions across the Brush Country/Rio Grande Plains.

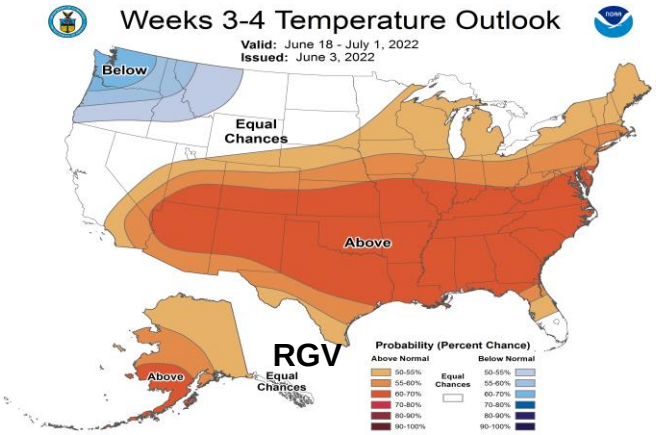
Falcon Reservoir Only a Tad Above 30-year Lows, at start of June 2022

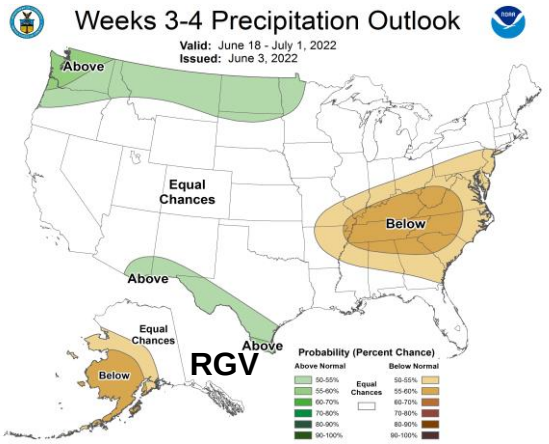


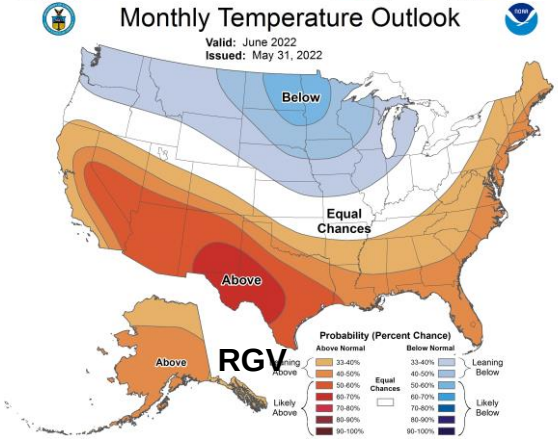


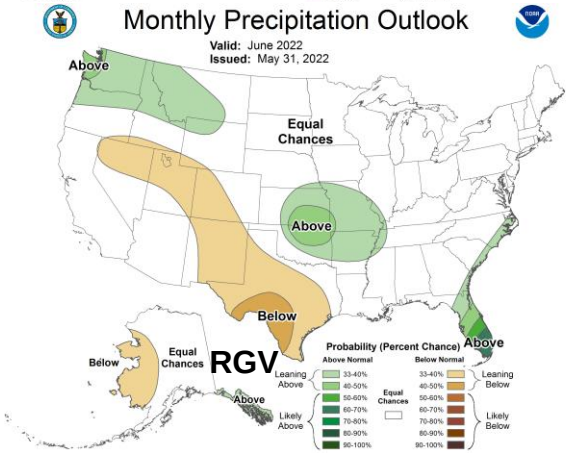
- Early May 2022 total capacity, Falcon Reservoir: **18 percent**
- Early June 2011 total capacity, Falcon Reservoir: **61 percent**

June 2022: Confidence High on Heat, Medium on Rainfall



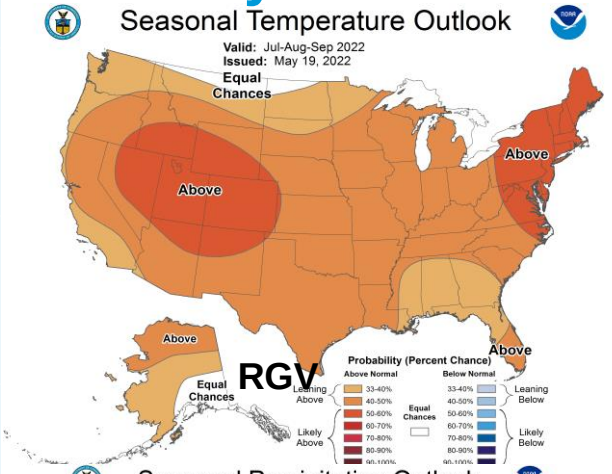


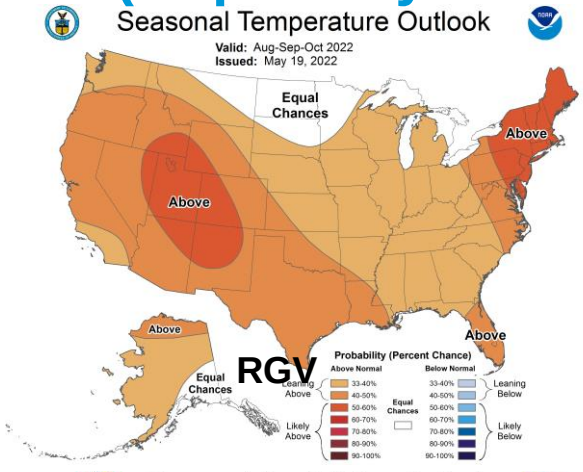


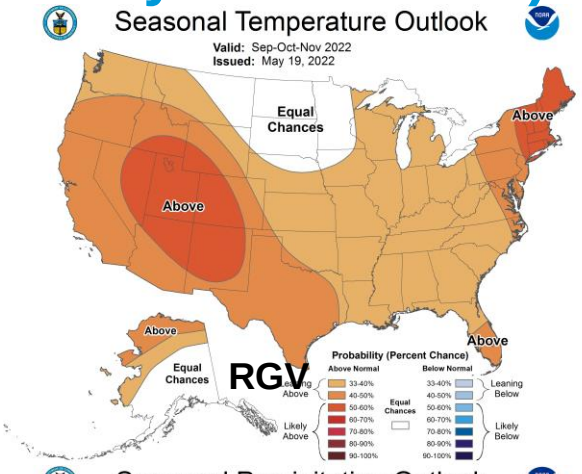


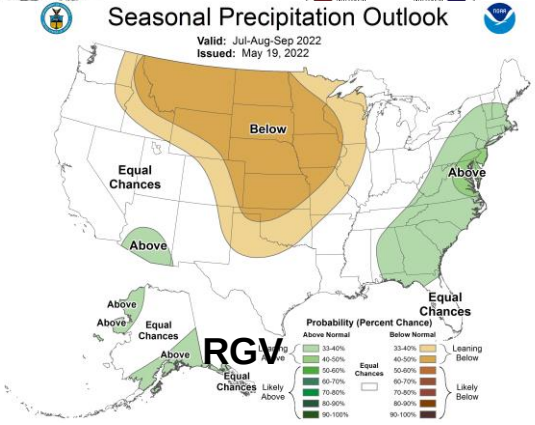
- **Bottom Line:** Through June 15-20th, hot, breezy, and rain-free weather will dominate – and temperatures will edge above the long term average. Drought/dryness will gradually spread back across the Lower Rio Grande Valley if no rain falls by the 20th.
- There were modest indicators for some type of tropical development in the southern to southwestern Gulf toward the final ten days of June. Should this occur and a cyclone pass near or just south of the Valley, "just-in-time" rainfall would keep dryness and drought from developing.

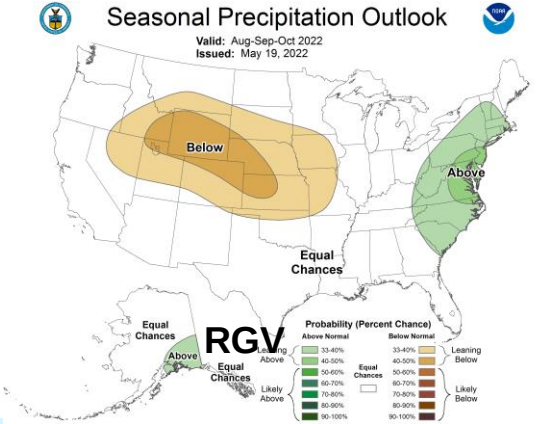
Late Summer/Autumn 2022: Continued Hot; Rainfall Uncertain but a dry lean continues (tropical systems always a wild card)

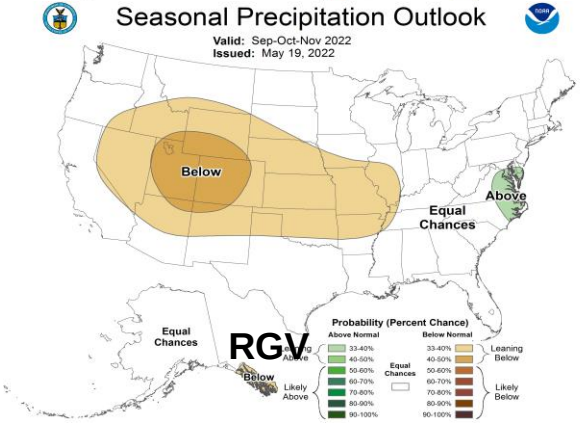












Bottom Lines

- **Heat** should be dominant through summer, perhaps setting the stage for *another high-ranked warm calendar year* should much warmer than average conditions persist through the rest of 2022. **Heat safety** should be promoted frequently.
- **Agriculture and municipal water shortages will increase** with high evaporation, lack of significant rainfall, and very low water levels in Falcon Reservoir, through summer **if no rain falls into municipality water systems or into Falcon Reservoir**. "La Canícula" is always a possibility, but confidence is low on exact positioning of the atmospheric high pressure ridge. ***Conservation, smart irrigation, rainwater harvesting*, etc. are still worth consideration**.
- **Drought is likely to reset to severe to extreme mainly west of IH 69/US 281** by mid summer if no "just-in-time" rain falls. **Moderate to Severe drought** would extend east toward Cameron/Willacy/Kenedy in this case. Green will turn back to yellow/brown across all regions in this case.
- **Summer 2022** remains a "wild card" for **torrential rain and flooding**. As events since 2018 have shown, it only takes a day or two to shift from drought to flood in the Rio Grande Valley – and that potential exists this season. Depending on the timing, torrential rain could be a boon or a disaster for summer agriculture. Hanna's rains in 2020 wiped out much of the region's extensive cotton crop; early July rains in 2021 were helpful to that year's crop.